

## Media release

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### **Empa organises an international construction conference in Dubai**

## **Ever faster – ever taller**

**The first international conference on “smart” monitoring, assessment and rehabilitation of buildings and other construction works will take place from 8-10 February 2011 in Dubai in the United Arab Emirates, the place with the tallest building in the world – the Burj Khalifa,. “SMAR 2011” will be jointly organised by Empa and the American University in Dubai.**

At the conference, around 220 scientists, engineers, businesspeople and construction specialists will discuss current developments and trends in the fields of architecture and building technology. They will also have the opportunity to line up new international partnerships. Specialists from 30 countries will combine theory and practice when delivering approximately 170 presentations. Alongside the conference, there will be a trade fair featuring local and international businesses.

### **Construction boom in the Middle East – a hub of innovation**

One of the six plenary presentations will be given by the Vice President of Samsung C&T, Ahmad Abderazaq. The “High-rise & Complex Buildings” division of the Korean conglomerate was involved in the Burj Khalifa, which has 162 floors and is the tallest building in the world. It is 828 metres high and can be seen from 90km away. Architects and builders were had to meet considerable challenges in the project. For instance, when planning the exterior of the building, aerodynamics had to be taken into account in order to ensure the building could withstand the winds at this altitude. Such a building goes above and beyond the norm and “architectural rules” are completely blown out of the water. Permanent monitoring of such buildings is imperative. Ahmad Abderazaq will share his experience with regard to the construction and operation of the sky-scraper.

The Burj Khalifa is just one of many highly ambitious projects in this booming region. Dubai not only holds the record for the tallest building, it also has many unusually designed buildings with unique dimensions. Whole towns are constructed here, some partly in the sea, at a rapid rate and with generous dimensions, including commercial buildings, business parks, airports, stadiums, harbours and much more. These are all built in accordance with conventional building standards and expert knowledge, although many new

construction innovations are also frequently really put to the test in practice for the first time in the Persian Gulf. This gives experts the chance to collate knowledge and to use the Emirates as a kind of research laboratory. During the conference in Dubai, new materials and innovative techniques will be presented and discussed, partly with regard to the manufacturing, but also in terms of quality assurance, data collection, measuring, monitoring and, where necessary, retroactive building reinforcement.

### **Modern monitoring and maintenance technology are in demand**

Empa brings its wealth of experience relating to various modern technologies to the conference. A number of presentations will look at the retrofitting of buildings with CFRPs (Carbon Fibre Reinforced Polymers), composites of CFRP and concrete, pre-tensioning of reinforcement and structural monitoring of buildings using wireless networks of sensors. Empa has been working in all these areas for some time already. The region has a very "stressful" climate for some materials, as the days are hot and the nights are cold. This calls for a special kind of innovation and new kinds of concrete. For example, specialists from Empa will present the idea of a concrete that can store energy and heat in order to "save" it to ease the situation during cold nights after scorching hot days. In addition, Empa will present its unique capabilities for static and dynamic surveys on large structures. Such surveys, whether carried out in the laboratory or in the "field", serve to check the structural behaviour as well as calculation models for bridges and tall buildings.

More information about the conference is available at: [smar.empa.ch](http://smar.empa.ch)

### **Further information**

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The tallest building in the world, the Burj Khalifa in Dubai, is 828 metres high, has 162 floors and can be seen from 90km away. (Image ©Juergen Stumpe / photos4you.de)



Almost a bird's-eye view: View from Burj Khalifa over Dubai. (Image ©Juergen Stumpe / photos4you.de)



Empa will present its unique capabilities for static and dynamic surveys on large structures, e.g. a lightweight model bridge in Empa's largest laboratory. Among other uses the bridge allows scientists to compare adaptive damping elements which are used to reduce cable resonances.

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